

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims

1 - 22. (canceled)

23. (currently amended) A device for reactive magnetron sputtering comprising

- a plasma source for generating a plasma flow ~~[[and]]~~ having an anode, a cathode and a plasma outlet for ~~[[the]]~~ a plasma flow,
- a process chamber connected to the plasma source at the plasma outlet for receiving plasma, the process chamber arranged to contain a work piece to be coated with material,

characterized in that the plasma source includes a chemisorption filter with filter plates having getter/sorption surfaces for 35 gettering/adsorbing reactive gas ions flowing towards the cathode and neutral particles sputtered from the cathode, the filter plates placed between the cathode and the plasma outlet.

24. (currently amended) A device according to claim 23, characterized in that ~~the sorption filter plates have cylindrical shapes and are located in such a way that axes of the cylinder shapes coincide with an axis of the anode and the cylinder shapes are similar to the shape of the cathode or the chemisorption sorption filter plates include~~ includes two sets of flat sorption filter plates crossing each other.

25. (canceled)

26. (New) A device according to claim 23, characterized in that the chemisorption filter includes parallel plates.

27. (New) A device according to claim 26, characterized in that the plates are arranged at a distance of 1-10 cm.

28. (New) A device according to claim 23, characterized in that the shape of the filter plates are similar to the shape of the cathode.

29. (New) A device according to claim 23, characterized in that the chemisorption filter is transparent for metal and gas plasmas and not transparent for neutral vapor.

30. (New) A device according to claim 23, characterized in that the plasma source comprises a discharge chamber, and the chemisorption filter is located in the discharge chamber and electrically connected to the anode.

31. (New) A device according to claim 23, characterized in that the chemisorption filter comprises getter/sorption surfaces oriented along a magnetic field.

32. (New) A device according to claim 23, characterized in that the chemisorption filter includes filter parts located inside the anode space including surfaces for forming layers of solid material obtained from condensing of a vapor of solid material formed in the plasma source.

33. (New) A device according to claim 23, characterized in that the plasma source comprises a pulsed power supply for applying periodically repeated voltage pulses between the anode and a magnetron sputtering cathode.

34. (New) A device according to claim 33, characterized in that said pulsed power supply is disposed to provide pulses for operating in a high power pulsed regime.

35. (New) A device according to claim 23, characterized in that an inlet for a sputtering gas is provided, said inlet being connected directly to the process chamber.

36. (New) A device according to claim 23, characterized in that an inlet for a reactive or processing gas is provided, said inlet being connected directly to the process chamber.

37. (New) A device according to claim 23, characterized in that said plasma source and said processing chamber form a vacuum vessel, and a stationary magnetic mirror trap is provided in the vacuum vessel, the trap having an axis substantially coinciding with an axis of the

vacuum vessel.

38. (New) A device according to claim 37, characterized in that the magnetic mirror trap comprises a work piece magnet assembly located at a remote end of the process chamber, behind the position of a work piece, seen from the plasma outlet, for generating a magnetic field which acts as a magnetic mirror trap to guide charged particles inside the process chamber from the plasma outlet and beyond the position of the work piece and therefrom back again.

39. (New) A device according to claim 37, characterized in that two electromagnetic coils are mounted outside the vacuum vessel to produce a magnetic field of said magnetic mirror trap, a first one surrounding the anode space and a second one mounted at a wall of the processing chamber opposite the end at which the magnetron sputtering cathode is mounted.

40. (New) A device according to claim 37, characterized in that the magnetic mirror trap is provided by arranging one work piece processing unit and two plasma sources located at the same axis, the processing chamber and the anode spaces of the two plasma sources forming the vacuum vessel.

41. (New) A device according to claim 37, characterized in that the mirror magnetic trap is provided having a cusped magnetic field produced by four plasma sources, each plasma source including a chemisorption filter.

42. (New) A device according to claim 23, characterized in that said plasma source said device is disposed for deposition of nonconductive metal oxides on said workpiece.